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EXAMINER	
PHAN, R	
ART UNIT	PAPER NUMBER
2305	6

DATE MAILED: 04/03/97

Please find below a communication from the EXAMINER in charge of this application.

SEE THE ATTACHED ACTION

Commissioner of Patents

Office Action Summary

Application No.

08/480,738

Applicant(s)

Zuravleff et al.

Examiner

Raymond N. Phan

Group Art Unit

2305



☒ Responsive to communication(s) filed on Dec 20, 1996

☒ This action is FINAL.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 39-80 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 39, 42-49, 51-59, 61-69, and 71-79 is/are rejected.

☒ Claim(s) 40, 41, 50, 60, 70, and 80 is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☒ The proposed drawing correction, filed on Dec 20, 1996 is ☒ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Part III DETAILED ACTION

Notice to Applicant(s)

1. This action is responsive to the following communications: amendment filed on January 17, 1997.
2. This application has been re-examined. Claims 39-80 are pending. Claims 1-38 have been canceled. Claims 39-80 have been added.

Drawings

3. The corrected or substitute drawing was received on December 20, 1996. This drawing is Figure 10.

Claim Rejections - 35 USC § 112

4. Claims 16 and 26 are rejected under 35 U.S.C. § 112, first paragraph, for the reasons set forth in the objection to the specification, have been withdrawn in view of the cancellation to the claims submitted by the Applicants on January 17, 1997.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention

was made, owned by the same person or subject to an obligation of assignment to the same person.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103.

6. Claims 39 and 42-49, 51-59, 61-69, and 71-79 are rejected under 35 U.S.C. § 103 as being unpatentable over Bell et al. (US No. 5,546,546) in view of Nguyen et al. (US No. 5,363,485).

In regards to claim 39, Bell et al. disclose a bus bridge for maintaining the transactions ordering between the processor-memory bus and I/O bus comprising one or more requesting processors that generates processor requests direct to one or more peripheral devices, a plurality of peripheral devices that accept the processor requests, and a controller (i.e. interface) for controlling the transactions between the processors bus and I/O bus (see figure 2, col. 4, line 35 through col. 5, line 35). But Bell et al. do not disclose a separate pending queues corresponding to each one of the plurality of peripheral devices for queuing the processor requests directed to a particular peripheral device in entries of a corresponding separate pending queues. However, Nguyen et al. disclose a bus interface comprising a central buffer having pending queues corresponding to each one of the plurality of peripheral devices (i.e. FIFO device) for queuing the processor requests directed to a particular peripheral device in entries of a corresponding separate pending queues (see abstract). Having a central buffer is to convey data between the first bus and the second bus and for conveying control information. Therefore, it would have been obvious to a person

of an ordinary skill in the art at the time the invention was made to have combined the teachings of Nguyen et al. into the teachings of Bell et al. because it would provide adequately performing queues in a system.

In regards to claims 42-43, Bell et al. disclose the priority state machine coupled to the first and second bus for determining whether a transaction in the inbound queue to be executed or a transaction in the outbound queue is to be executed (see col. 22, lines 37-52).

In regards to claim 44, Bell et al. disclose the one or more requesting processors generate the request over the first bus (i.e. processor bus), and the peripheral device accept the request over the second bus (i.e. I/O bus) (see figure 4, col. 7, line 50 through col. 8, line 52). The different bandwidth between two buses are well known to a person skilled in the art.

In regards to claim 45, Bell et al. disclose the controller tagged the request (see col. 8, lines 33-37).

In regards to claim 46, Bell et al. disclose the controller place the processor requests in the return queue (i.e. inbound queue) after the peripheral device respond to the request (see col. 8, lines 38-52).

In regards to claim 47, Bell et al. disclose the shared buffer for pending queues (see col. 9, line 62 through col. 10, line 5).

In regards to claim 48, the use of controller variably adding entries to pending queues from the allocated free pool of entries only after the processor requests are generated is well-known to a person skilled in the art.

In regards to claim 49, Nguyen et al. disclose the use of pointer in a queue registers (see col. 7, line 31 through col. 8, line 14).

Claims 51-59 are the apparatus claims corresponding to the claims 39 and 42-49. Therefore, claims 51-59 are rejected for the same rationale set forth claims 39 and 42-49.

Claims 61-69 are the method claims corresponding to the claims 39 and 42-49. Therefore, claim 61-69 are rejected for the same rationale set forth claims 39 and 42-49.

Claims 71-79 are the system claims corresponding to the apparatus claims 39 and 42-49. Therefore, claim 71-79 are rejected for the same rationale set forth claims 39 and 42-49.

Allowable Subject Matter

7. Claims 40-41, 50, 60, 70, and 80 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. Claims 39 and 42-49, 51-59, 61-69, and 71-79 are rejected. Claims 40-41, 50, 60, 70, and 80 are objected. Claims 1-38 are canceled. Claims 39-80 are added.

9. The prior arts made of record and not relied upon are considered pertinent to applicant's disclosure.

Sarangdhar et al. (US No. 5,568,620) disclose a method and apparatus for performing bus transactions in a computer system.

Swarts et al. (US No. 5,459,839) disclose a system and method for managing queue read and write pointers.

Foss et al. (US No. 5,367,681) disclose a system and method for routing messages to processes in a computer system.

Bennett et al. (US No. 5,588,125) disclose a system and method for increasing bus bandwidth on a system bus by inhibiting interrupts while posted I/O write operations are pending.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for response to this final action is set to expire **THREE MONTHS** from the date of this action. In the event a first response is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for response expire later than **SIX MONTHS** from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Raymond Phan, whose telephone number is (703) 306-2756. The examiner can normally be reached on Monday-Thursday from 6:30AM-4:00PM. The examiner can also be reached on alternate Fridays during the same hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Harvey, can be reached on (703) 305-9705. The fax phone number for this Group is (703) 308-5358.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Raymond Phan
March 28, 1997 RP

Jack B. Harvey
JACK B. HARVEY
SUPERVISORY PATENT EXAMINER
GROUP 2300